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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/798,448

03/12/2004

Takeshi Takezawa

119082

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7590

05/16/2007

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EXAMINER

SEMBER, THOMAS M

ART UNIT

PAPER NUMBER

2885

MAIL DATE

DELIVERY MODE

05/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/798,448

Applicant(s)

TAKEZAWA, TAKESHI

Examiner

Thomas M. Sember

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 07 March 2007.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-24 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5) ☐ Notice of Informal Patent Application

6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by MOENCH ET AL. (US 2005/0024880), which discloses an illumination apparatus for a projector/light modulator (Paragraph 2) including: •A light emitting tube, which has a light emitting portion performing light emission between a pair of electrodes (2); •A sealing portion/electrode shaft located on a front side (22); •A sealing portion/electrode shaft located on a rear side (23); •Wherein each sealing portion/electrode shaft conduct heat from electrodes/have heat conduction parts (Fig. 1 illustrates electrodes within a heat conducting tube with end parts2); •A first reflector which is arranged on a rear side with respect to the light emitting portion of the light emitting tube (1); •A second reflector which is a heat/reflection material arranged on a front side with respect to the light emitting portion and attached to the sealing portion located on the front side so that its reflection may surround substantially the front half of said light emitting portion (3); and •An end part of at least one of said pair of electrodes is held in touch with an inner surface of said light emitting tube (Fig. 1 illustrates electrodes within tube 2 supported by a surface therein).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9, 10, 12-18 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over MOENCH ET AL. (US 2005/0024880) and KAI ET AL. (US 6,784,601). MOENCH discloses an illumination apparatus for a projector/light modulator (Paragraph 2) including: •A light emitting tube, which has a light emitting portion performing light emission between a pair of electrodes (2); •A sealing portion/electrode shaft located on a front side (22); •A sealing portion/electrode shaft located on a rear side (23); •Wherein each sealing portion/electrode shaft conduct heat from electrodes/have heat conduction parts (Fig. 1 illustrates electrodes within a heat conducting tube with end parts 2); •A first reflector which is arranged on a rear side with respect to the light emitting portion of the light emitting tube (1); •A second reflector which is a heat/reflection material arranged on a front side with respect to the light emitting portion and attached to the sealing portion located on the front side so that its reflection may surround substantially the front half of said light emitting portion (3); and •An end part of at least one of said pair of electrodes is held in touch with an inner surface of said light emitting tube (Fig. 1 illustrates electrodes within tube 2 supported by a surface therein). 3. While MOENCH substantially discloses the claimed invention as provided above, MOENCH does not disclose an electrode shaft that is longer/thicker

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or has a thicker wall on a front side than a rear-side electrode shaft. However, KAI teaches a front end sealed portion/electrode shaft that is longer than that of the corresponding rear-side portion for the purpose of increasing the heat capacity/restricting the temperature on the front side, which is more subject to heat degradation (23/27/29, Fig. 1; Column 3, Line 55-Column 4, Line 10 discloses a longer/thicker shaft and corresponding wall in a direction parallel to the shaft length). It would have been obvious to one of ordinary skill in the art at the time of invention to modify MOENCH and use the longer/thicker electrode shaft as taught by KAI in order to restrict temperature and likelihood of heat degradation.

4. Claims 7, 8, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MOENCH ET AL. (US 2005/0024880) and SEKI ET AL. (US 6,734,628). MOENCH discloses an illumination apparatus for a projector/light modulator (Paragraph 2) including: •A light emitting tube, which has a light emitting portion performing light emission between a pair of electrodes (2); •A sealing portion/electrode shaft located on a front side (22); •A sealing portion/electrode shaft located on a rear side (23); •Wherein each sealing portion/electrode shaft conduct heat from electrodes/have heat conduction parts (Fig. 1 illustrates electrodes within a heat conducting tube with end parts 2); •A first reflector which is arranged on a rear side with respect to the light emitting portion of the light emitting tube (1); •A second reflector which is a heat/reflection material arranged on a front side with respect to the light emitting portion and attached to the sealing portion located on the front side so that its

reflection may surround substantially the front half of said light emitting portion (3); and

- An end part of at least one of said pair of electrodes is held in touch with an inner surface of said light emitting tube (Fig. 1 illustrates electrodes within tube 2 supported by a surface therein). While MOENCH substantially discloses the claimed invention as provided above, MOENCH does not disclose a sealing portion coated with a heat radiation material. However, SEKI teaches a heat radiation material (40) coating a sealing portion (20, Fig. 1) for the purpose of suppressing a temperature increase (Column 7, Lines 17-60). It would have been obvious to one of ordinary skill in the art at the time of invention to modify MOENCH and use the heat radiation material as taught by SEKI in order to facilitate optimal operating temperatures of an illumination apparatus.

### ***Response to Arguments***

Applicant's arguments, filed 9/18/2006, have been fully considered and are not persuasive.

Applicant essentially asserts that the lack of a written disclosure specifically describing the connection between the electrodes (22/23, Figs. 1-2) and an inner surface of the light emitting tube (inner surface of area encapsulating space 21) prevents the reference from reading on the language of Claim 14 "...an end part of at least one of said pair of electrodes is held in touch with an inner surface of said light emitting tube." Examiner respectfully disagrees since it is inherent that electrodes have "end parts" and must be supported by the inner surface of the light emitting tube to ensure operation.

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Moreover, it is reasonable to conclude that the connection of the electrode end part to the inner surface of the light emitting tube and the support provided therefrom was not specifically detailed in the disclosure since such connections are notoriously known in the art and is therefore not required to teach the invention. Applicant argues that KAI does not teach a front-side electrode shaft that is longer than a corresponding rear-side shaft. Examiner respectfully disagrees. Applicant acknowledges that KAI teaches providing a longer sealed portion for restricting the temperature of the front-end, but argues there is a difference between the sealed portion and an electrode shaft. Notably, the term "electrode shaft" is not limited to just the shaft immediately adjacent to the electrode, but can include any shaft portion adjacent to the electrode. As such, Examiner interpreted the sealed portion (23) to be an electrode shaft and its contents (27) to be an electrode shaft, and commensurate with Applicant's claim language. Notably, these shaft portions as well as portion (29) all support the front-side electrode (26) given that the term "support" merely requires connection with an ability to transfer mechanical force. Examiner considers the element (23) and internal elements (27 and 29) to fall within the scope of Applicant's claim language.

Applicant argues that SEKI does not teach a heat radiation material, which is higher in thermal conductivity than a material of a sealing portion. However, SEKI specifically teaches the use of reflective material (40) being formed of a material having a heat radiation rate larger than that of quartz glass, i.e. the tube including sealing portions (Column 7, Lines 17-60; Column 1, Lines 32-33).

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

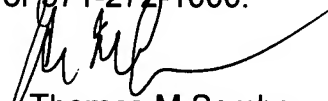
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Sember whose telephone number is 571-272-2381. The examiner can normally be reached on M-F 9 a.m.- 5.30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571-272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thomas M Sember  
Primary Examiner  
Art Unit 2885